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Title:	**Comparison Between the Forces and Moments Applied on the Residuum of Above-Knee Amputees During Daily Life Activities and Walking**
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Background and purpose: One significant problem experienced with the direct attachment of external prostheses to the skeleton of above-knee amputees (AKA) is early loosening of the boney anchorage. The forces and moments transmitted through this attachment have been estimated for walking but it has been conjectured that potential damaging loading might occur during other daily activities (Table 1).

Methods: Forces from a transducer (JR3 Inc) mounted between the socket and the knee mechanism are recorded at 150 Hz on a remote PC using a telemodem link for one AKA.

Results and conclusion: Only the values of torque are presented as this is arguably the most critical component of force in for the design of skeletal attachment device. In table 1, all the activities produced substantially larger external moments during the first half of the support phase than during level walking. The highest moments were developed in the latter half of the stance phase but only during walking in a circle and descending an incline was the peak moment higher than during walking. Such data will be essential in re-evaluating the current prosthesis design.

***Table 1* : Mean values of the moment along the long axis of femur produced at 25% and 75 % of the support phase during daily life activities**

Activity	Support phase	
	25 %	**75 %**
Walking (14 steps)	-0.01±1.32	-6.54±0.94
Ascending stairs (12 steps)	-2.82±1.27	-3.14±1.33
Descending stairs (12 steps)	-1.30±1.12	-1.79±1.07
Ascending slope (5 steps)	-1.94±1.03	-4.28±1.28
Descending slope (5 steps)	-3.39±1.03	-7.00±0.54
Around a circle (7 steps)	-2.24±0.86	-7.50±1.09